

Chum Flow Alternatives Analysis

		Minimum Tailwater Elevation				
		<u>Base Case</u>	<u>11.5 Ft.</u>	<u>12.0 Ft.</u>	<u>12.5 Ft.</u>	<u>13.0 Ft.</u>
Frequency of Meeting November-March Chum Flow						
			# of times out of 50			
	NOV	42	50	50	50	50
	DEC	40	50	50	50	50
	JAN	44	50	50	50	50
	FEB	39	50	50	50	50
	MAR	40	50	50	50	50
Frequency of Meeting or Exceeding Vernita Bar Protection Flow Level						
			# of times out of 50			
	DEC	50	50	50	50	50
	JAN	50	50	50	50	50
	FEB	50	50	50	49	45
	MAR	50	50	50	47	44
<u>Grand Coulee Effects</u>						
Average March 31						
	Elevation - ft.	1257	1253	1250	1247	1244
	range	1226 - 1283	1226 - 1283	1209 - 1283	1208 - 1283	1208 - 1283
			# of times out of 50			
	at mid-April URC	38	35	34	32	32
			# of times out of 50			
	at Full or URC on June 30	50	50	50	50	50
<u>Priest Rapids Flows - kcfs</u>						
	Apr16-Jun30 50Yr Ave.	172	170	169	168	167
	range	90 - 265	82 - 265	76 - 265	71 - 265	69 - 265
			# of times out of 50			
	Apr16-Jun30 misses (<135 kcfs)	10	10	11	11	11
<u>McNary Flows - kcfs</u>						
	May-June 50Yr Ave.	290	288	287	286	285
	range	150 - 474	133 - 474	128 - 474	124 - 474	116 - 474
			# of times out of 50			
	Apr16-Jun30 misses (<220 kcfs)	11	11	11	11	12

Modeling Assumptions:

Base Case - Use draft at GCL, LIB and HGH as needed to meet minimum Chum flows but limit drafts to specified levels established by COE and BOR in November and December. Limit drafts to Variable Draft Limits according to BiOp for Jan-Mar.

Alternatives - Use as much draft at GCL as needed to meet Chum flows for November through March. LIB and HGH operation is the same as in the Base Case.

Flow Equivalent to TW elevation (kcfs)

	Base Case	11.5 ft	12 ft	12.5 ft	13 ft
Nov	122.5	121	128	134	140
Dec	122.5	108	116	124	131
Jan	115	110	117	124	131
Feb	115	115	122	129	136
Mar	115	111	118	125	133

Albeni Falls Draft to 2051 feet vs. 2055 feet in November

4 feet = 180 ksfd = 6,000 cfs for 30 days

refill from 2051 ft to 2055 ft mostly occurs in April

FCRPS energy production increases in November, decreases in April

Energy market values in November are greater than in April

Potential BPA revenue effect is a gain of \$5 million annually (50yr average)
- (range of \$1 - 13 M)